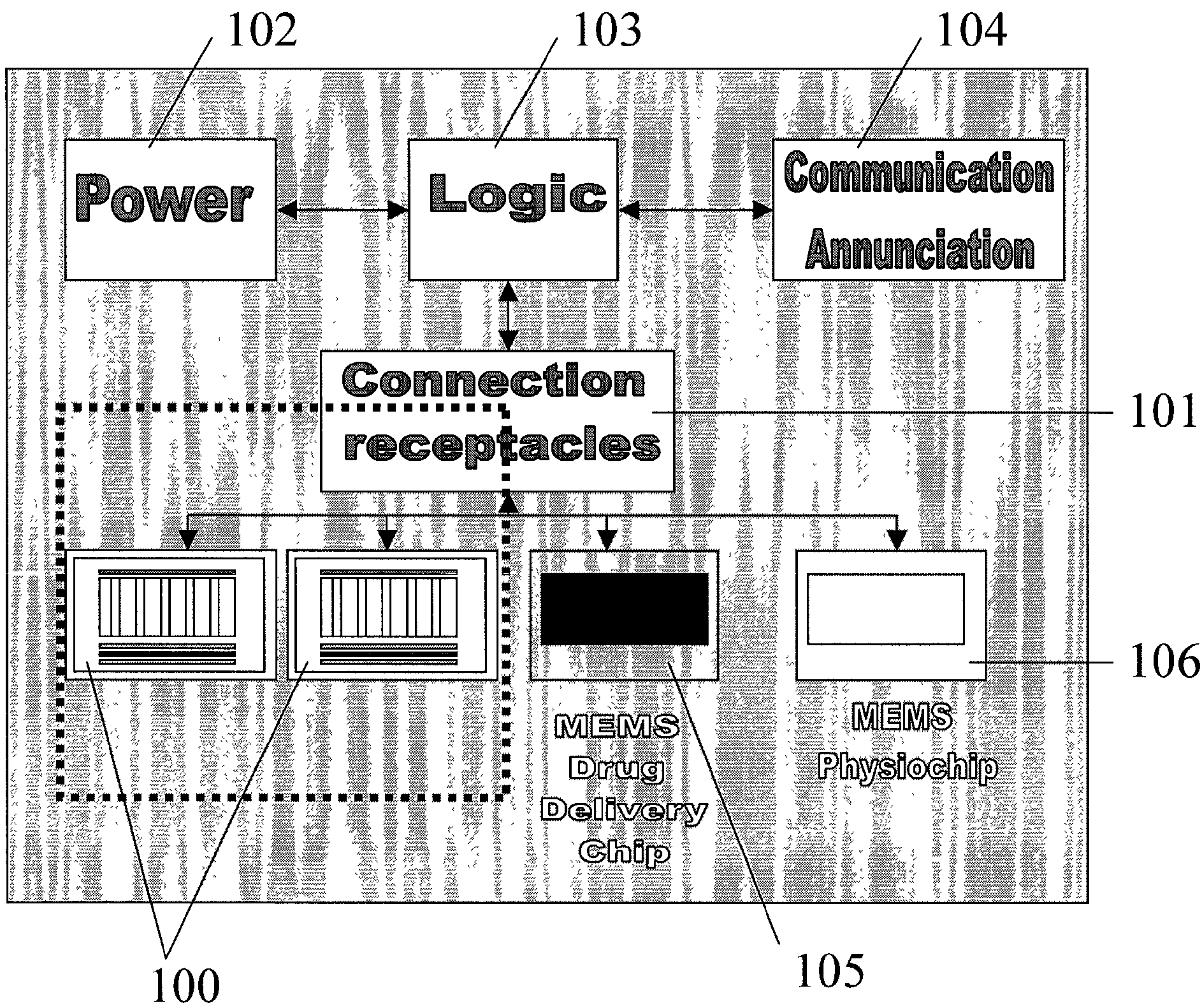
102
103
104
Power
Logic
Communication
Annunciation
Connection
receptacles
101
106
MEMS
Drug
Delivery
Chip
MEMS
Physiochip
100
105

Figure 1

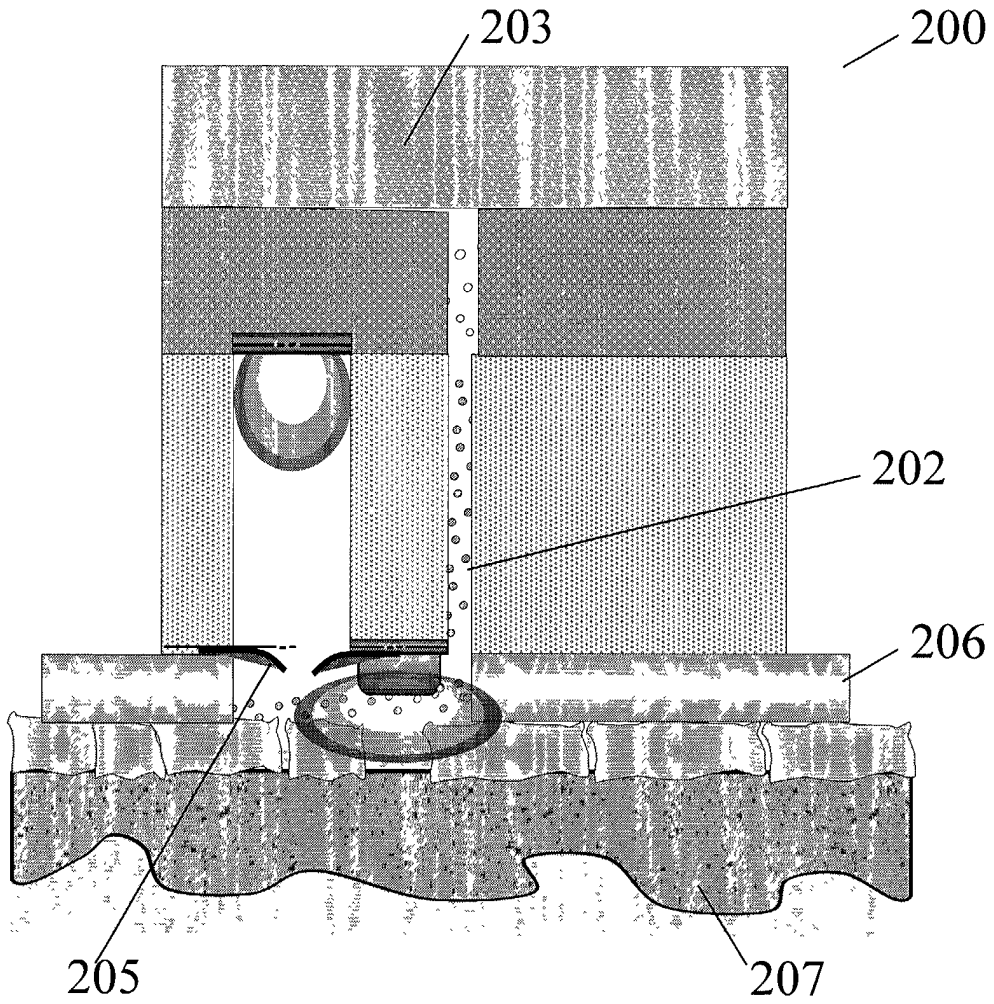

Figure 2

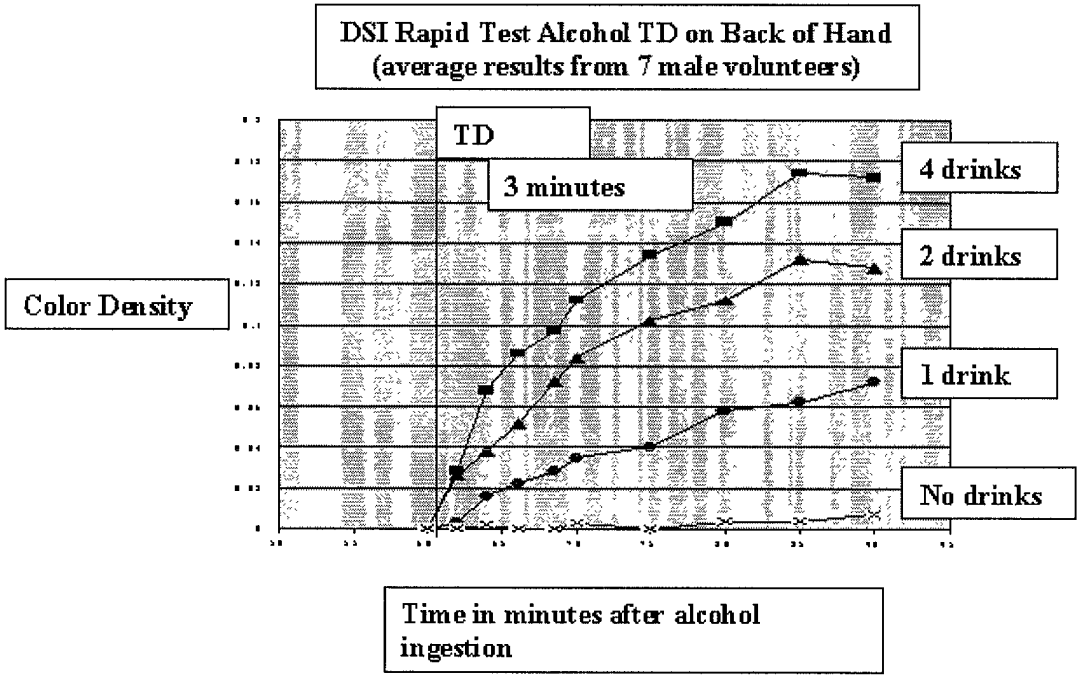
DSI Rapid Test Alcohol TD on Back of Hand
(average results from 7 male volunteers)
TD
3 minutes
4 drinks
2 drinks
1 drink
No drinks
Color Density
Time in minutes after alcohol ingestion

Figure 3

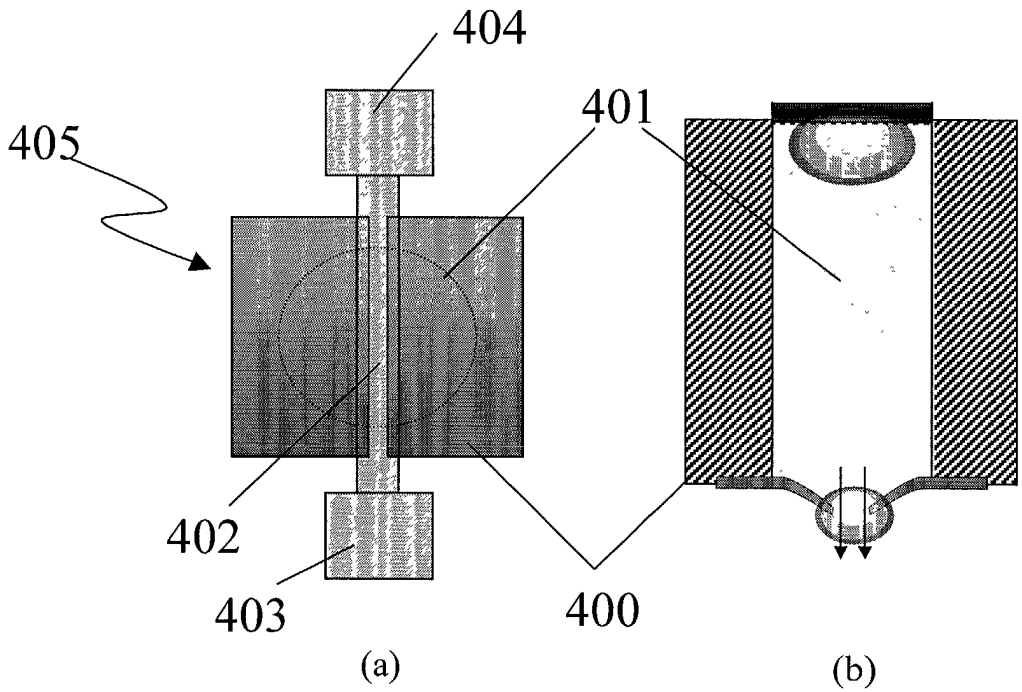

Figure 4

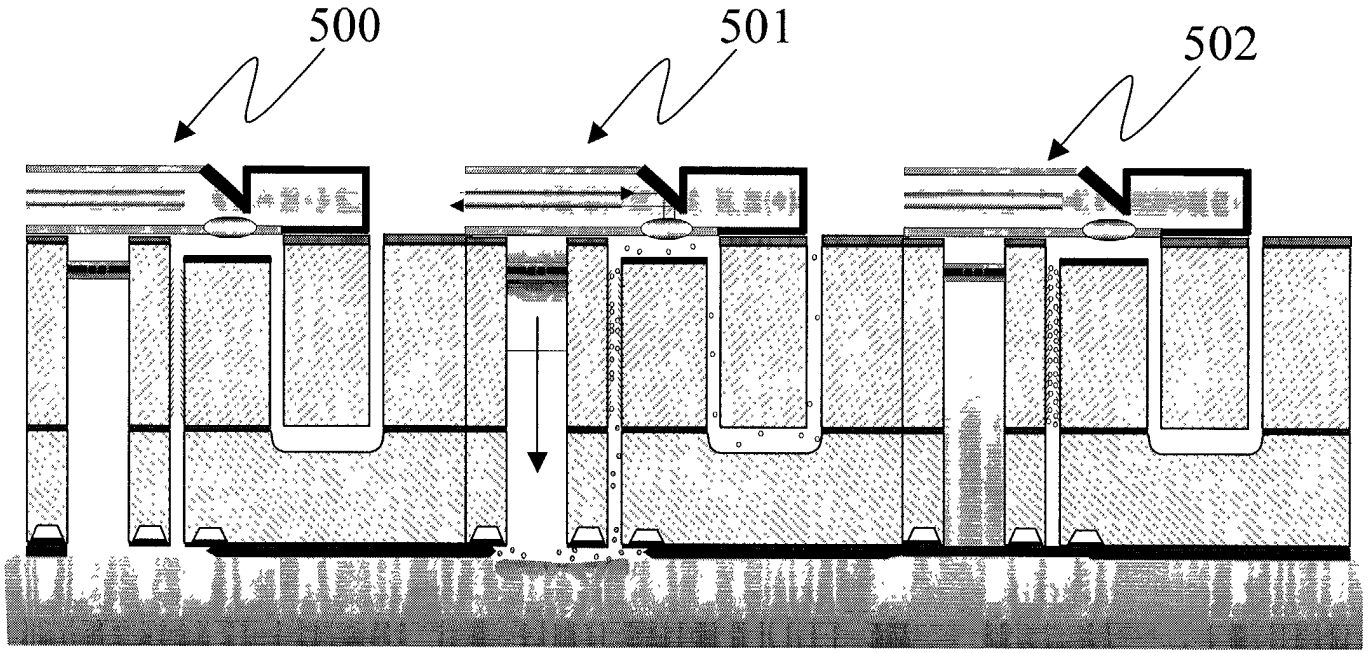

Figure 5

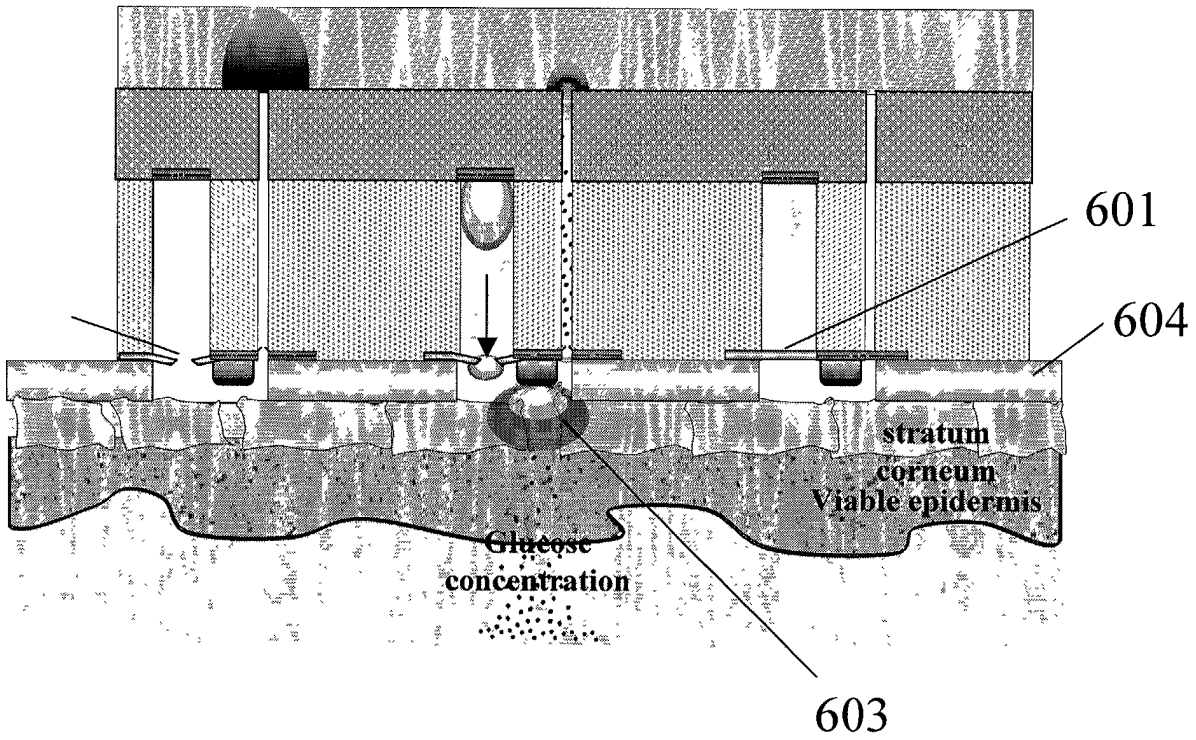
601
604
stratum
corneum
Viable epidermis
Glucose
concentration
603

Figure 6

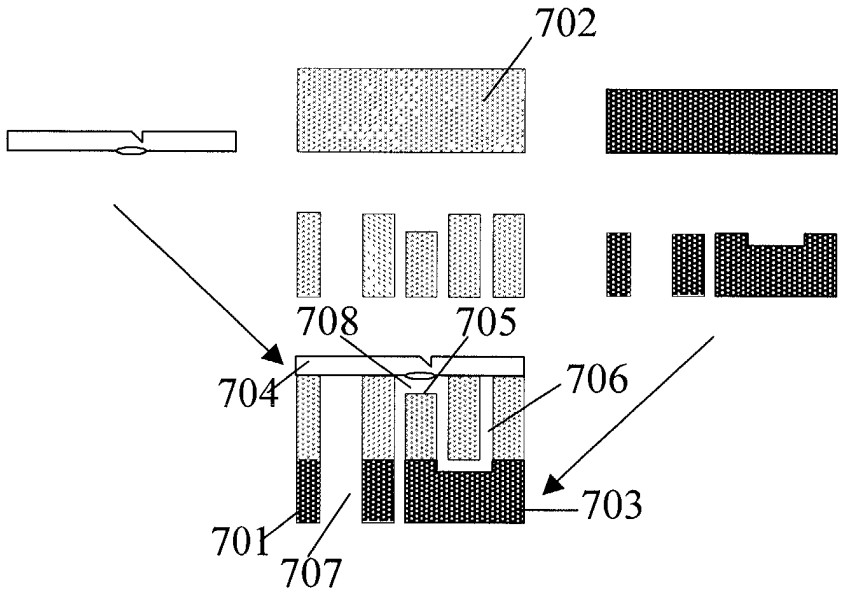

Figure 7

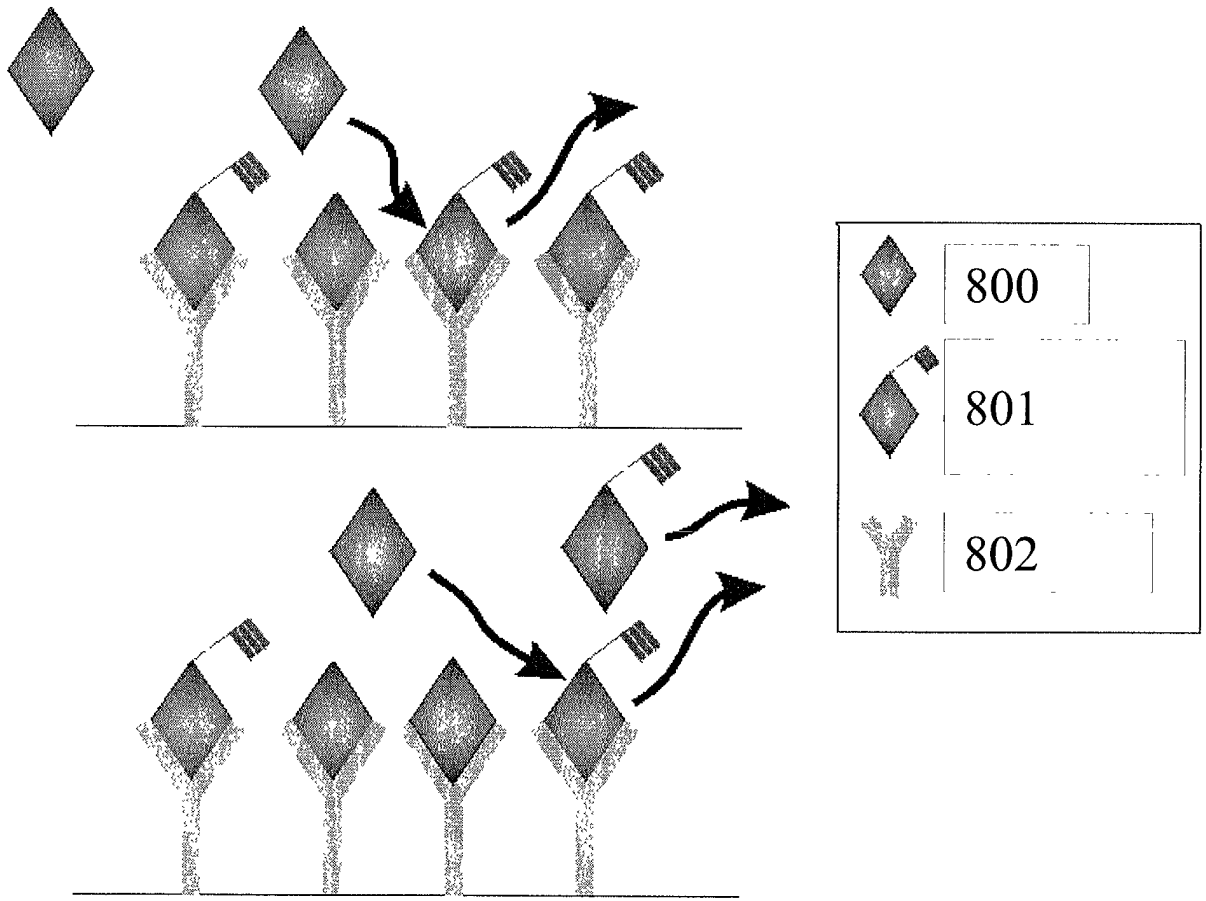

Figure 8

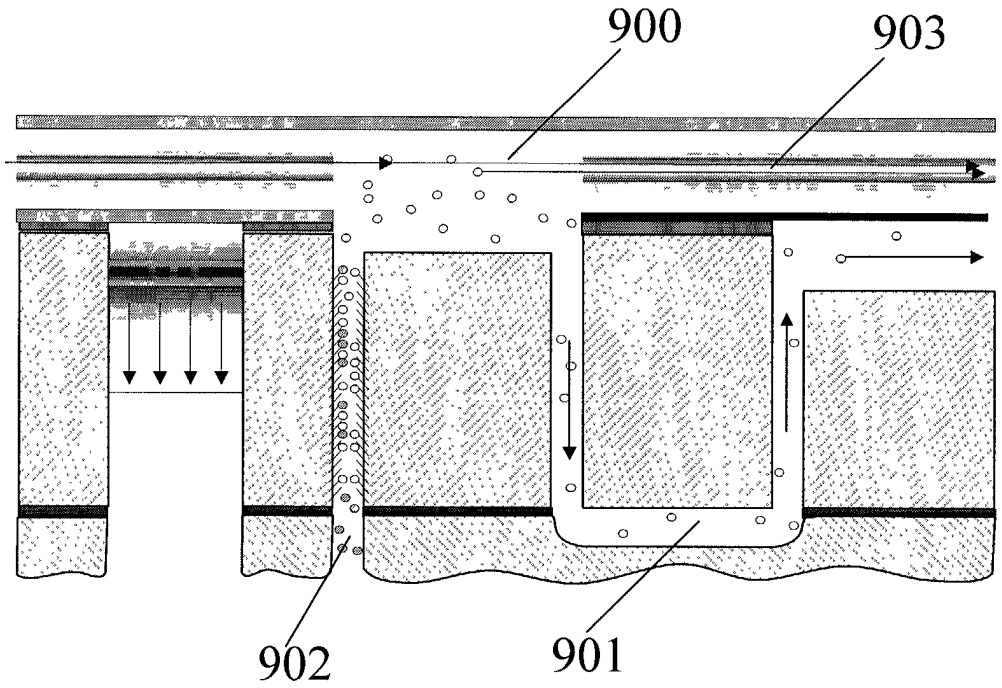

Figure 9

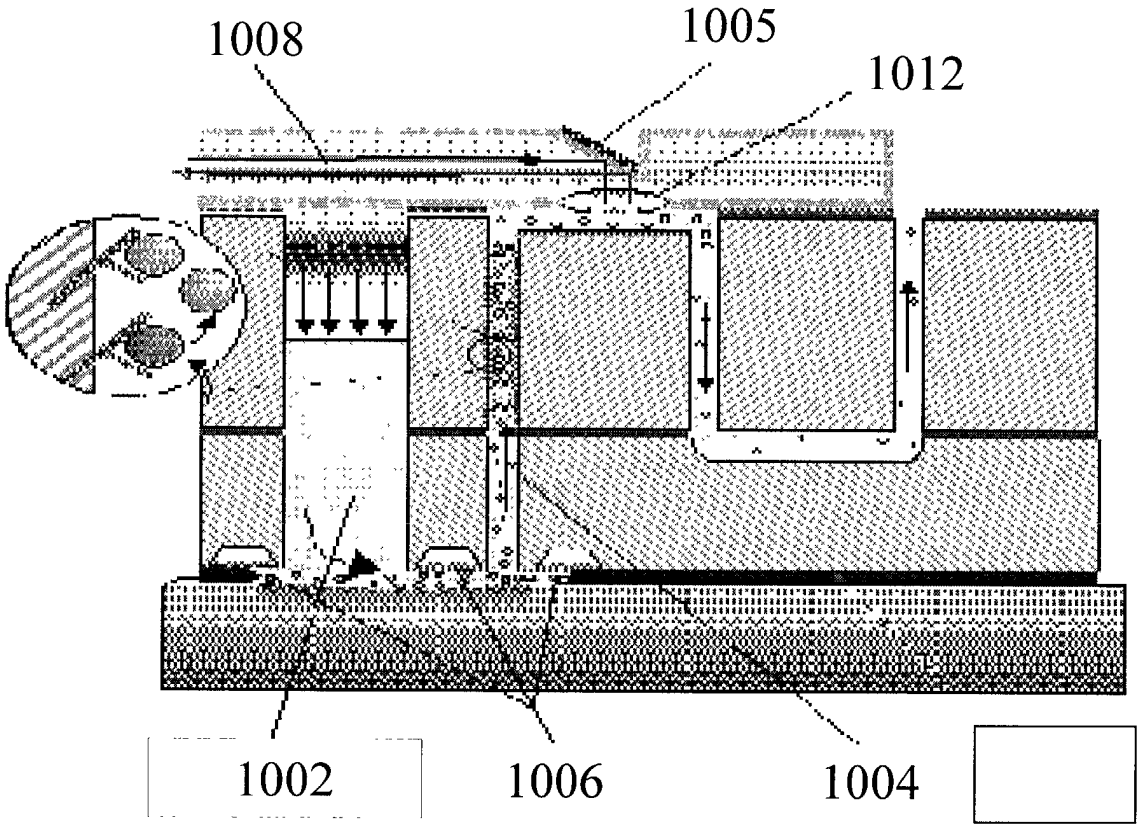

Figure 10

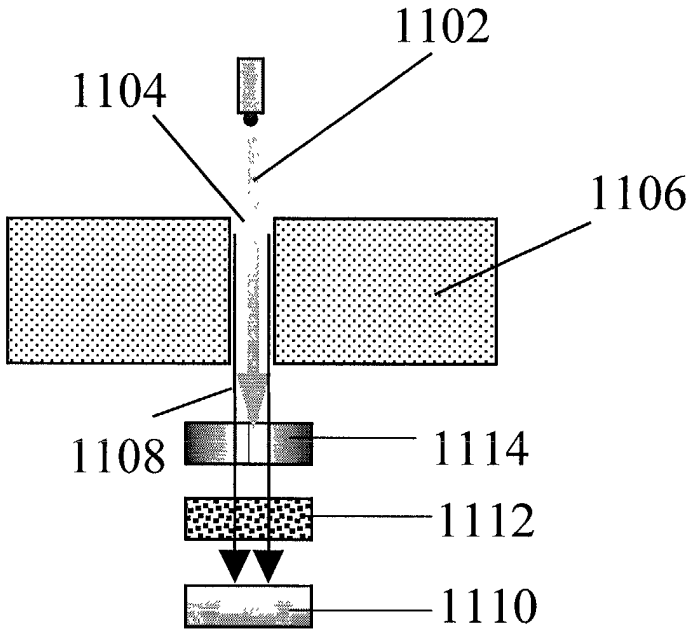

Figure 11

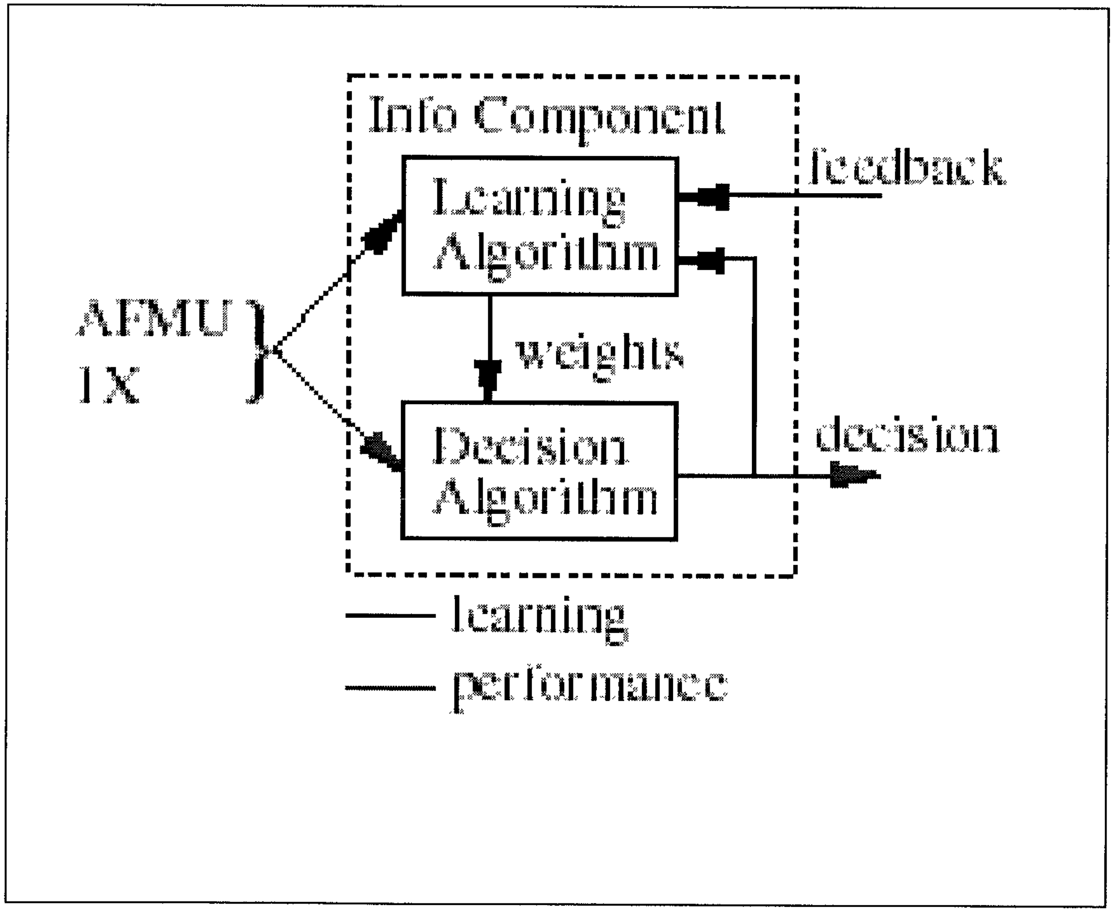
Info Component
Learning Algorithm
feedback
AFMU
IX
weights
Decision Algorithm
decision
learning
performance

Figure 12

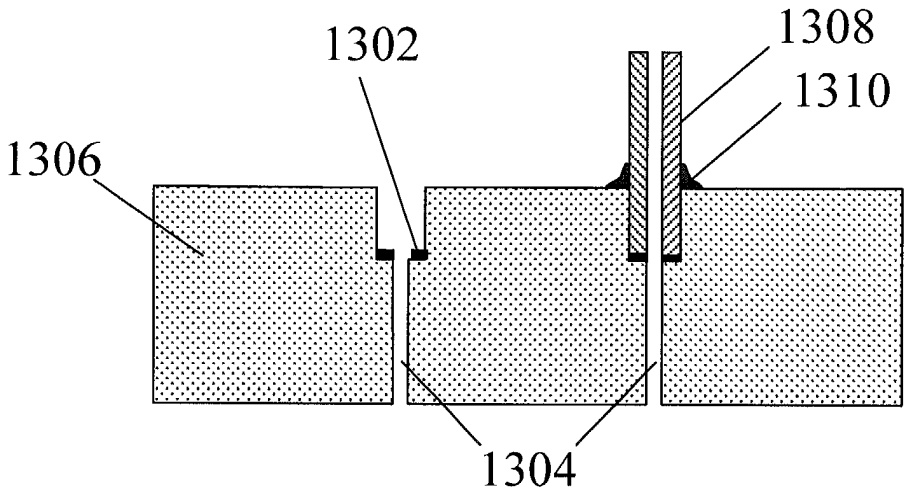

Figure 13

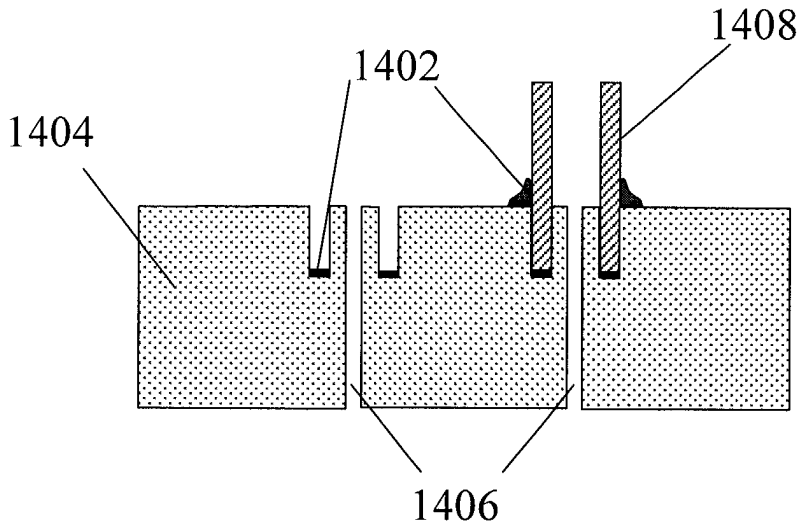

Figure 14

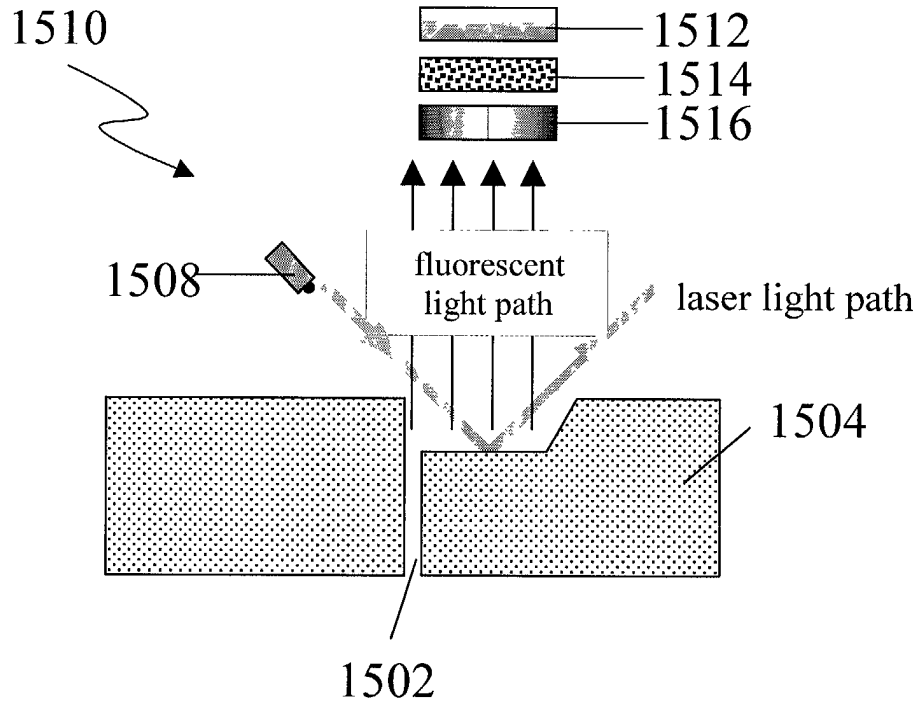
1510
1512
1514
1516
1508
fluorescent
light path
laser light path
1504
1502

Figure 15

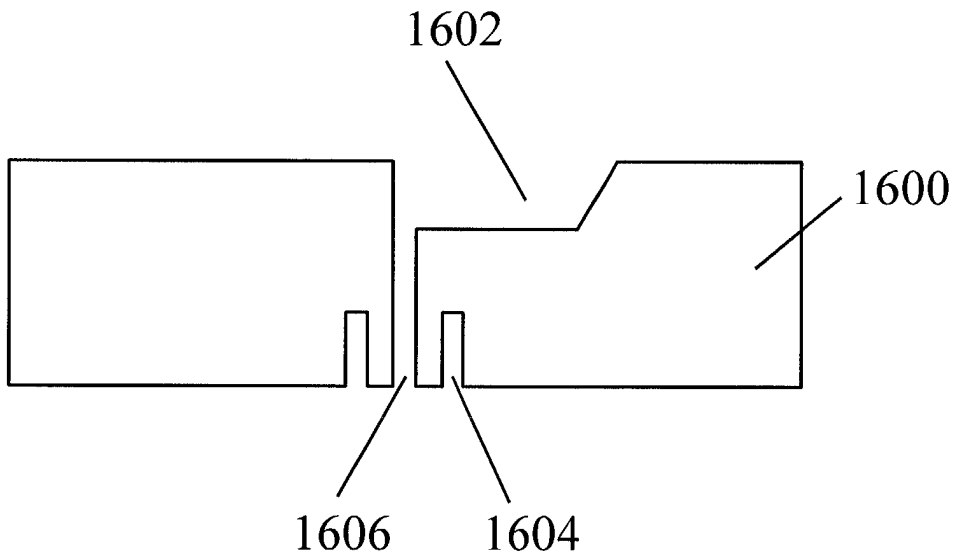

Figure 16

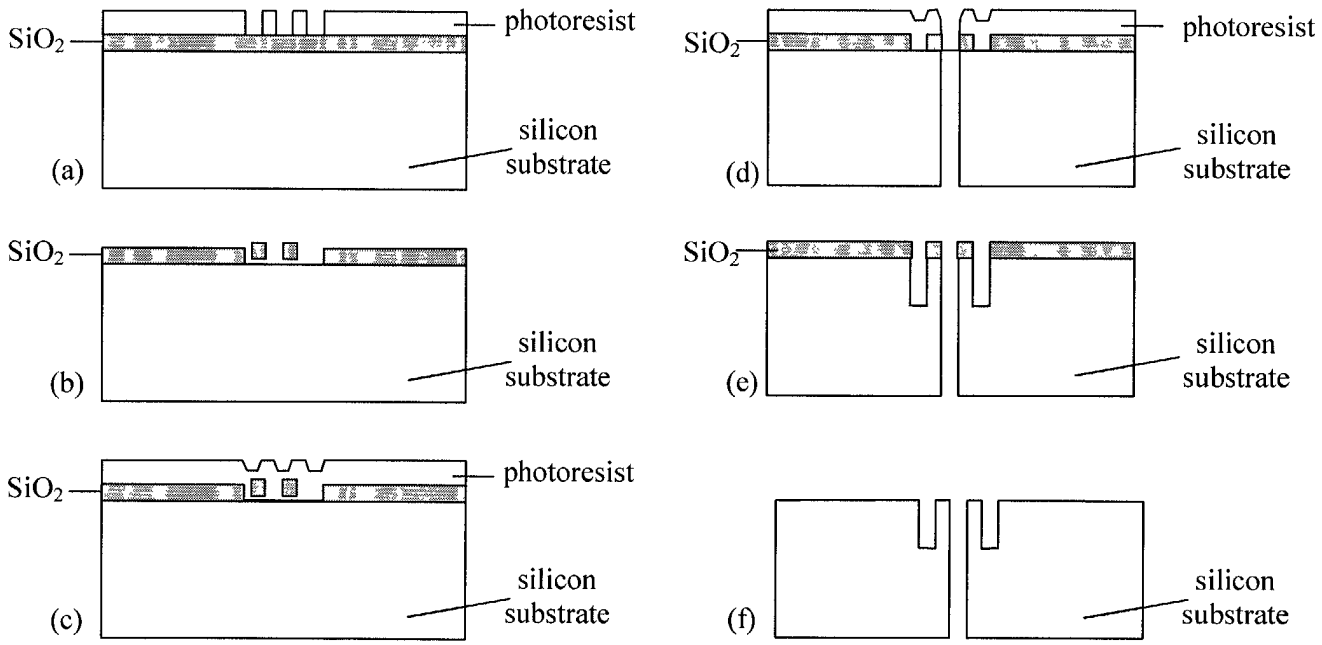
SiO2
photoresist
silicon substrate
(a)
SiO2
silicon substrate
(b)
SiO2
photoresist
silicon substrate
(c)
SiO2
photoresist
silicon substrate
(d)
SiO2
silicon substrate
(e)
silicon substrate
(f)

Figure 17

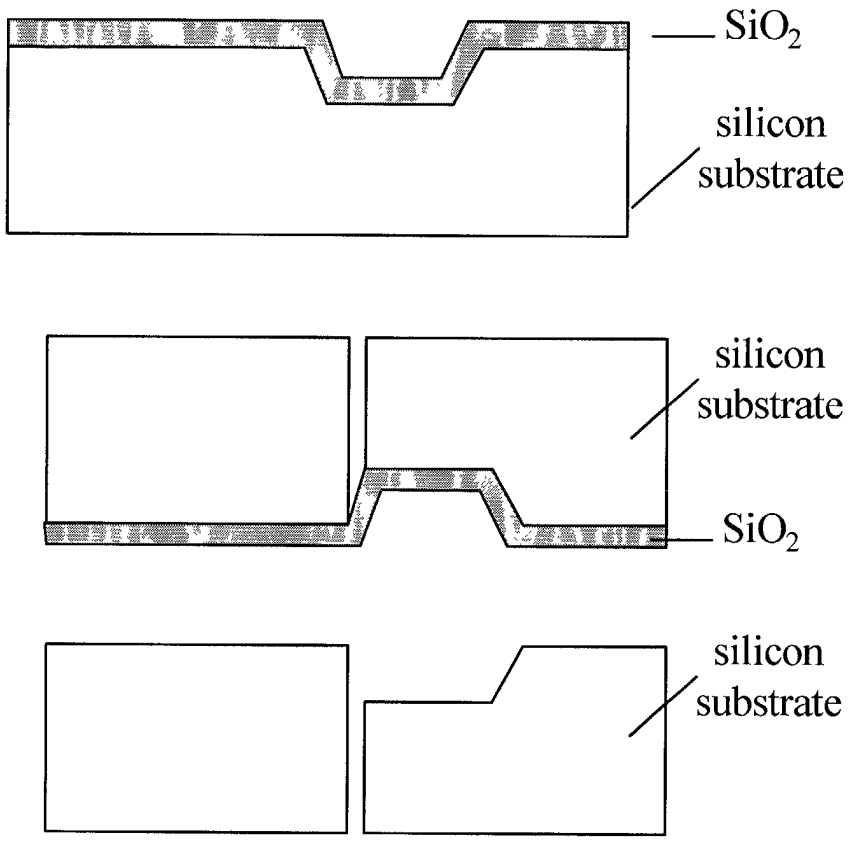

Figure 18

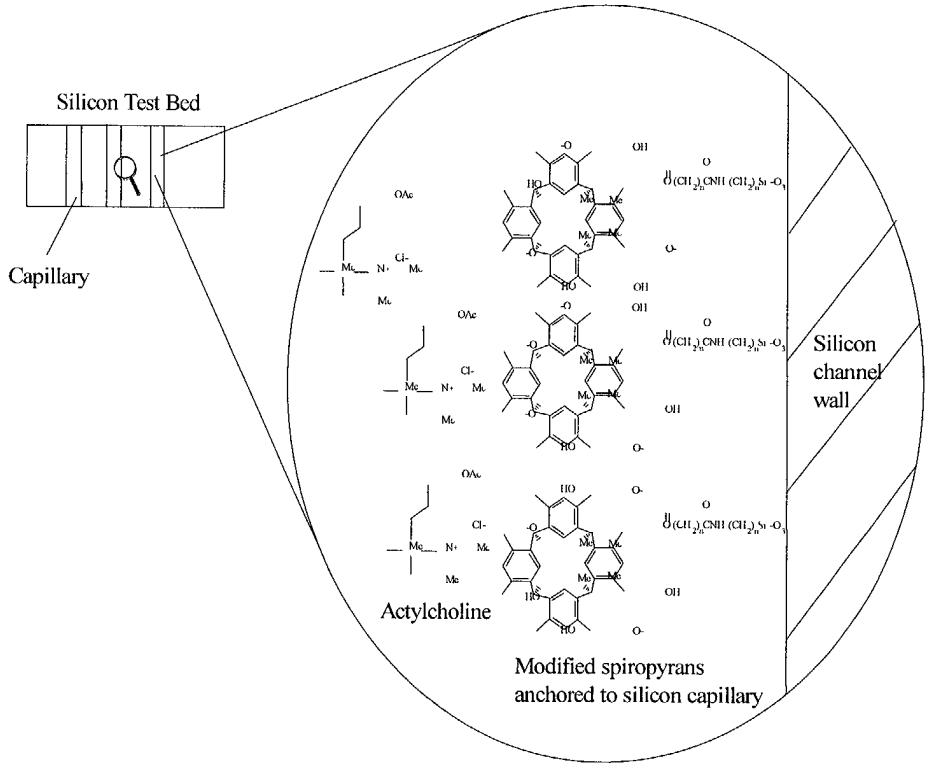
Silicon Test Bed
Capillary
Silicon channel wall
Actylcholine
Modified spiropyrans anchored to silicon capillary

Figure 19

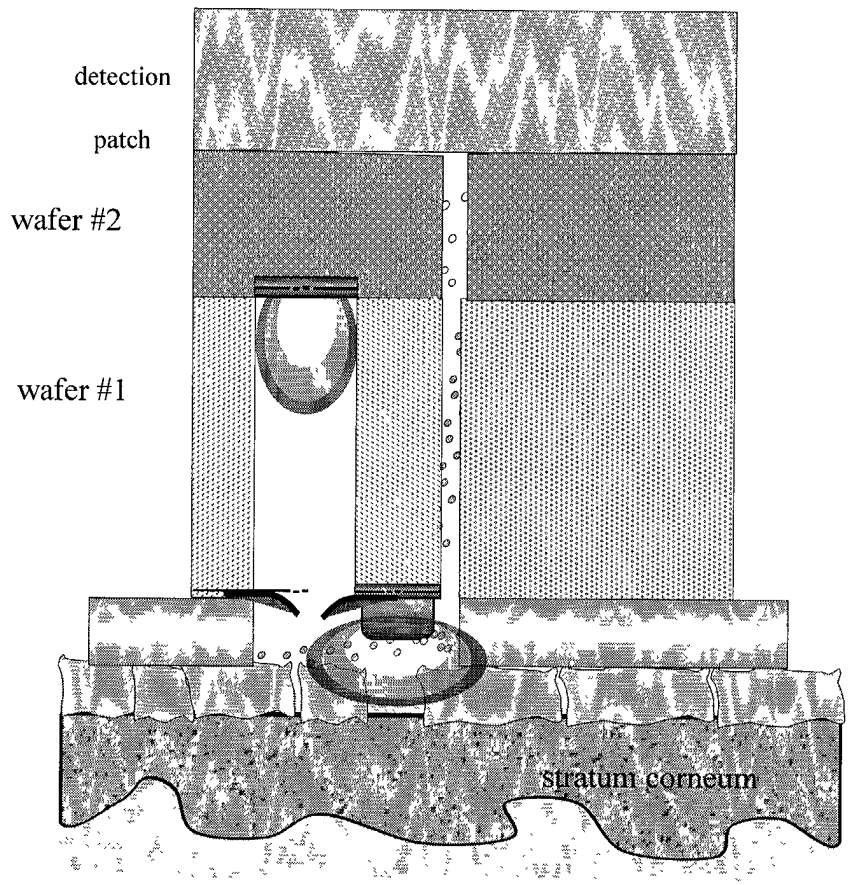

Figure 20

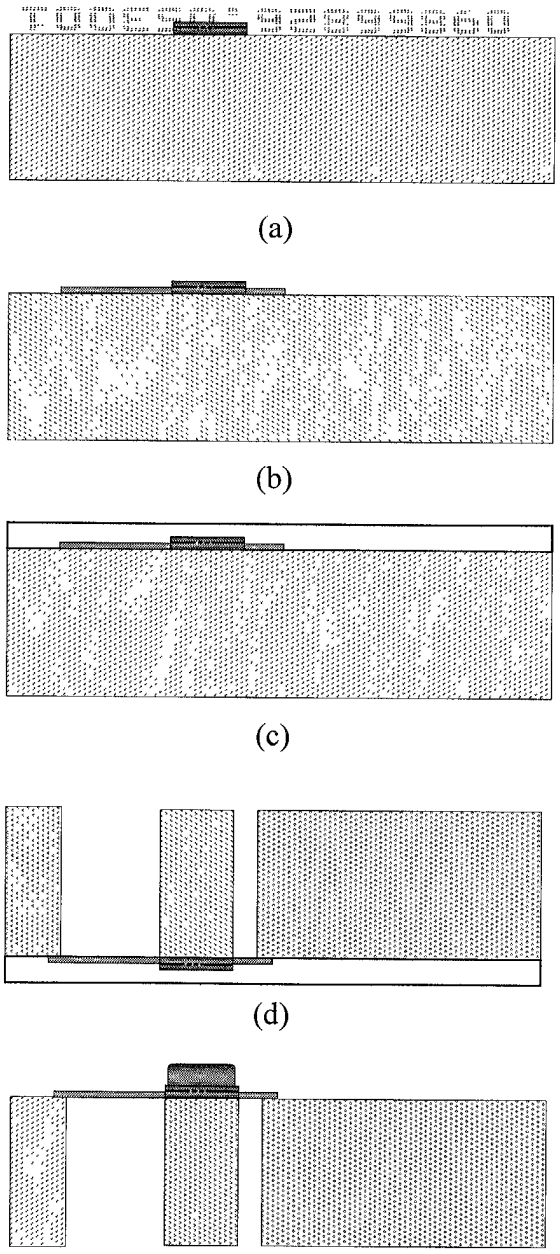

Figure 21

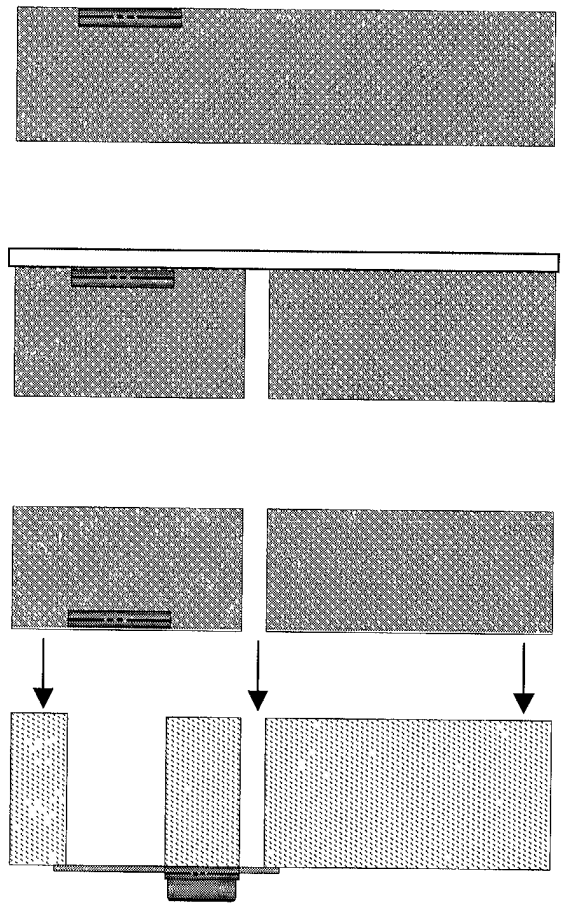

Figure 22

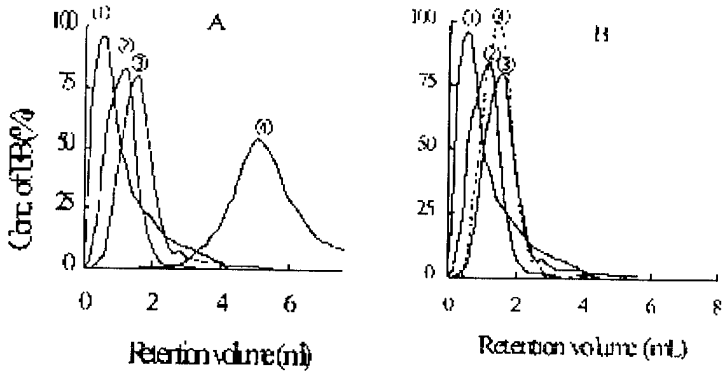
A
B
100
75
50
25
0
0
2
4
6
8
Retention volume (ml)
Retention volume (mL)

Figure 23

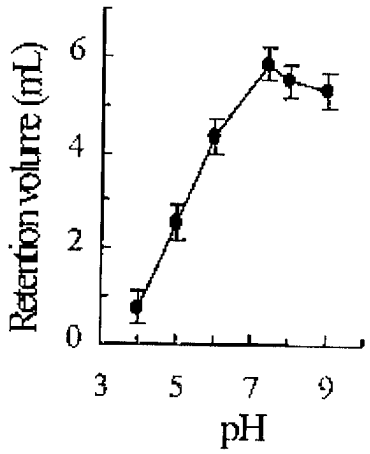

Fig. 3

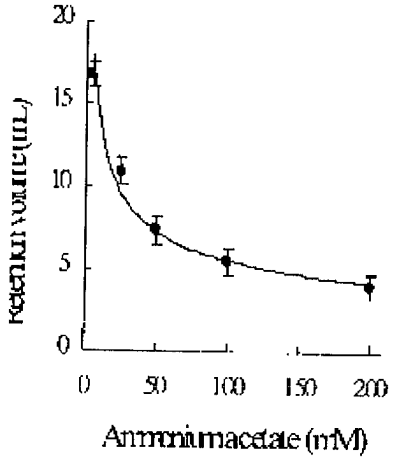

Fig. 4

Figure 24